EX PARTE OR LATE FILED

April 25, 1997

Mr. William F. Caton
Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Re: Notification of Permitted Ex Parte Presentation
in CS Docket No. 97-80 **[and ET Docket No. 93-7]**

Dear Mr. Caton:

Scientific-Atlanta, Inc., pursuant to Section 1.1206(a) of the Commission's rules, hereby submits an original and three copies of this memorandum regarding a permitted ex parte presentation to Commission officials regarding the **[two]** above-cited proceeding**[s]**.

Today at 11:00 a.m., William Loughrey and Jack Miller of Scientific-Atlanta, Inc. met with Bill Johnson, Nancy Markowitz, Ron Parver, John Wong, Meryl Icove and John Norton of the FCC's Cable Services Bureau and R. Alan Stilwell, of the Office of Energy and Technology. The discussion addressed Scientific-Atlanta's practices and policies (and related public policy issues) regarding licensing, open standards, and network architecture issues for cable set-top boxes, particularly in a digital environment (as set forth in the attached Scientific Atlanta "white paper" on digital broadcast with real-time reverse, and the attached diagram regarding Scientific Atlanta's open standards program).

Kindly direct any questions regarding this matter to the undersigned.

Respectfully submitted,

William Loughrey

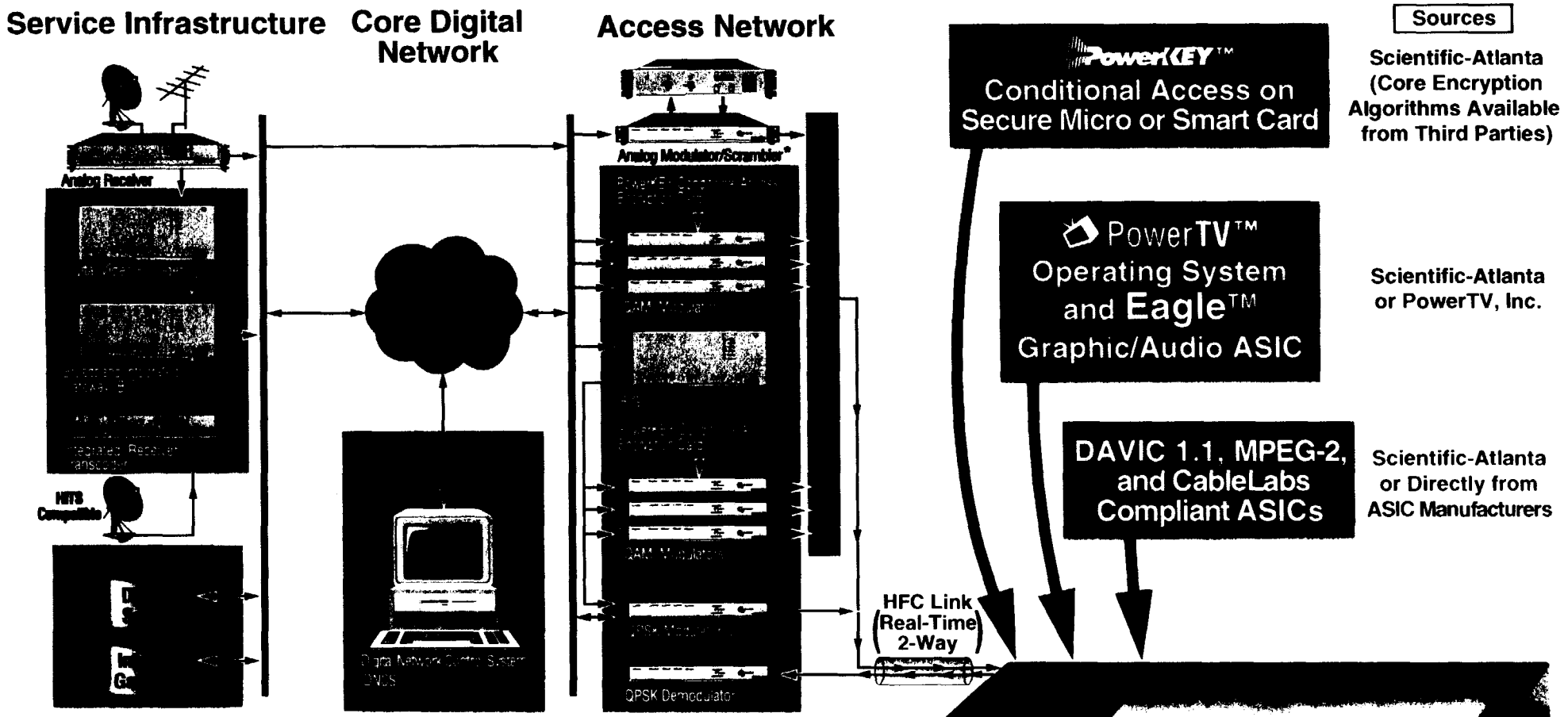
William Loughrey

cc (with attachments):
Bill Johnson
Nancy Markowitz
Ron Parver
John Wong
Meryl Icove
John Norton
R. Alan Stilwell

Open Standards Partnering Program

Non-Proprietary Core Technologies and Proven System Compatibility

Scientific Atlanta



PowerKEY™ Conditional Access

Network Interface with PowerTV™ Operating System

DAVIC 1.1, MPEG-2, and/or CableLabs Compliant

* Analog scrambling "optional"

** All headend products available from Scientific-Atlanta except Digital Server, Internet Gateway, and Digital Network

DAVIC 1.1, MPEG-2 and CableLabs compliant digital headend supplied by Scientific-Atlanta.

Digital set-top or cable modem designed and produced by manufacturer with Scientific-Atlanta documentation and technical support.

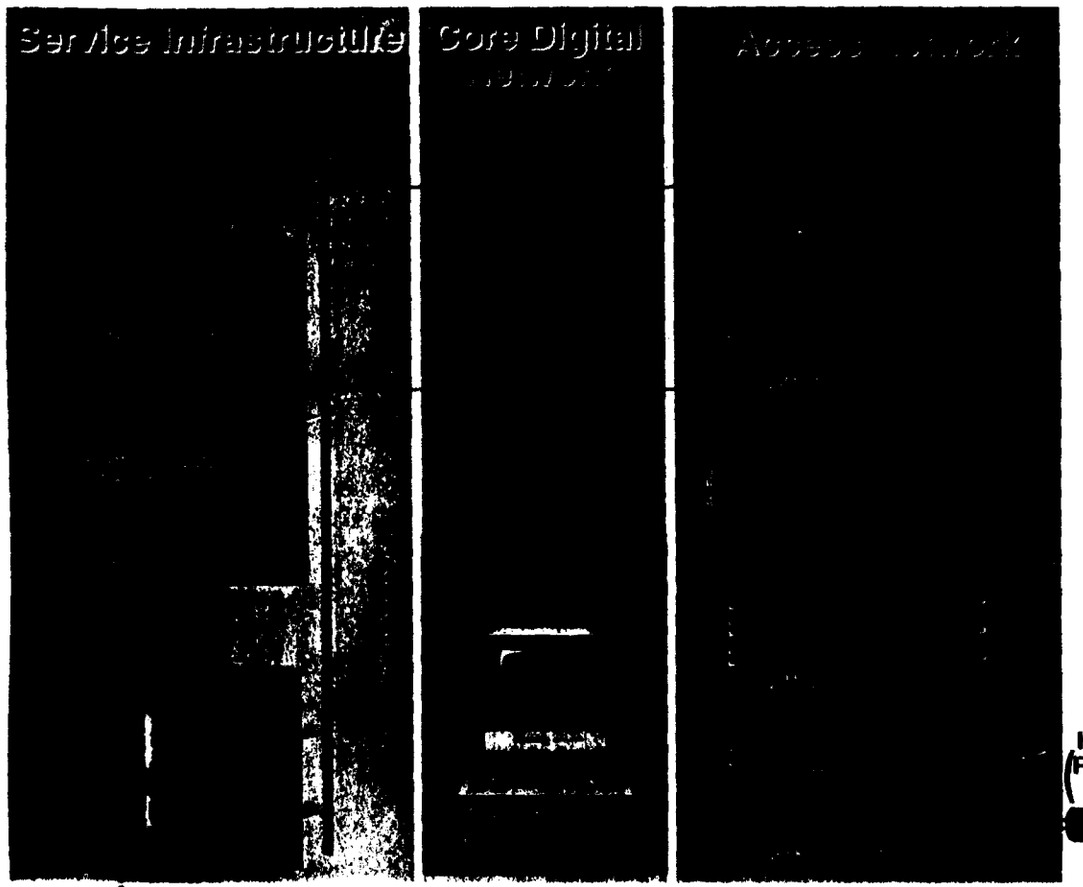
T3332

[redacted]

Open Standards Partnering Program

Non-Proprietary Core Technologies and Proven System Compatibility

Scientific Atlanta



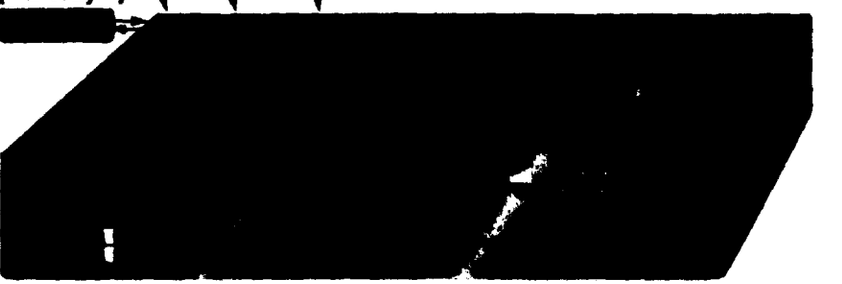
Sources

PowerKEY™ Conditional Access on Secure Micro or Smart Card — Scientific-Atlanta (Core Encryption Algorithms Available from Third Parties)

PowerTV™ Operating System and Eagle™ Graphic/Audio ASIC — Scientific-Atlanta or PowerTV, Inc.

DAVIC 1.1, MPEG-2, and CableLabs Compliant ASICs — Scientific-Atlanta or Directly from ASIC Manufacturers

HFC Link (Real-Time 2-Way)



PowerKEY™ Conditional Access

Network Interface with PowerTV™ Operating System

DAVIC 1.1, MPEG-2, and/or CableLabs Compliant

* Analog scrambling "optional"

** All headend products available from Scientific-Atlanta except Digital Server, Internet Gateway, and Digital Network

DAVIC 1.1, MPEG-2 and CableLabs compliant digital headend supplied by Scientific-Atlanta.

Digital set-top or cable modem designed and produced by manufacturer with Scientific-Atlanta documentation and technical support

T3332

Digital Broadcast with Real-Time Reverse:

The key to economical deployment of digital systems

Deployment of digital technology is expected to advance rapidly as more realistic expectations for integrated data and video services gain acceptance. The new pragmatism is based on both technical and market developments:

- Interactive trials have proven that the technology works. Thanks to the efforts of organizations such as CableLabs/SCTE, DAVIC and DVB, end-to-end digital multimedia standards are emerging to replace fragmented, proprietary efforts. Standards now exist for an end-to-end digital system including video/audio compression and return signaling. This makes for a safer investment and ensures multiple sources of supply. Reductions in the number of microprocessor chips will continue to lower the cost of digital systems.

- With the success of direct broadcast satellite services, consumer awareness and acceptance of digital television is growing. Wider acceptance is almost assured with the likelihood that some digital video disk (DVD) players will be in retail stores soon, and digital MMDS systems may launch in 1997.

Future opportunities for digital services — particularly Internet access via broadband networks — are expected to be lucrative, so operators need to develop sound migration strategies now. The average consumer will increasingly be exposed to the quality of digital pictures and sound and the variety of programming choice. Clearly, the digital age for cable is dawning and many operators are preparing to deploy digital as soon as practical.

The issue now is not if or when cable should begin to migrate to digital — but how the technology should be implemented to maximize revenue growth and competitiveness. Early on, those preparing for digital deployment must decide: ***What type of digital system or architecture is the best investment?***

Not all digital systems are the same. With competition mounting and digital technology maturing, network operators have to make choices soon of how to implement digital. The good news: Now there's a new choice.

The set-top box price/performance decision is often the primary factor in making a business case for initial deployment of any digital architecture. The set-top decision is driven by the kinds of services that will generate revenue over the life of the unit. However, when deploying a digital system, network operators must carefully consider the scalability of other components of the network, including software and headend equipment.

Now There Will Be a New Approach for Deploying Digital

Until now, those considering how to deploy digital services had an unappealing choice of digital system architectures:

- a simple, one-way, broadcast-only system with limited opportunities for incremental revenue — and no credible way to advance to two-way services without costly replacement of first generation set-tops; or

- a complex "switched interactive" system with full capabilities for digital services, but hampered by high cost, lack of developed services, and unproved consumer demand.

Notably missing to date: A digital system architecture capable of meeting today's early needs — and ready to migrate to higher-end digital services as market demand and content increase.

Scientific-Atlanta will fill that void with a scaleable, adaptable systems architecture: a digital broadcast

system with a real-time reverse-path transmitter built into the company's new Explorer™ 2000 set-top. This "interactive ready" approach will provide a sound business solution for operators ready to begin digital deployment. They can start with a digital broadcast capability and migrate to two-way capabilities when justified.

Built on a foundation of open standards, Scientific-Atlanta's system with built-in two-way communications will stand apart from the other choices on the market based on its ability to:

- Start with less-complex digital broadcast services;
- Immediately support high-speed data and Internet access via either television or a PC;
- Allow operators to upgrade the system as new digital services and applications such as VOD prove their revenue potential;
- Leverage emerging industry standards in content authoring (i.e., HTML, Java, etc.); and
- Capitalize on the inherent strengths of HFC transmission networks.

A Closer Look at the Alternatives

1. The simple, broadcast-only system

The simple one-way, broadcast-only digital system will offer consumers the basic advantages common to all digital architectures: better audio and video quality, plus greater consumer choice of content. It is also designed to support interactive viewing guides, pay-per-view, near-video-on-demand (NVOD), and digital music applications.

However, this one-way digital system (of which the set-top is just one component) will support only broadcast digital signals without real-time reverse — and therefore can never be truly two-way or interactive from the headend to the subscriber. At a time when Internet access via the PC (and soon, via the television set) is increasing exponentially, this missing feature will lessen the value and useful life of one-way, broadcast-only systems. *(See Appendix for system diagrams of all three alternatives.)*

The simple broadcast-only system, with fewer network resources per subscriber, will be considerably less expensive to implement than switched digital. Although the broadcast-only alternative may seem to be the most economical, it suffers from few opportunities for incremental revenue. It will support only analog and digital broadcast and digital audio. These services alone, even with the digital advantages of better image and sound quality and greater choice for consumers, will not be enough to justify a set-top that may cost up to $450. Furthermore, the limited life span of broadcast-only set-tops means additional investment will likely be required in the near future to replace them with more advanced set-tops.

Limitations of the simple one-way system extend beyond the set-top. Without a viable upgrade path, the entire system — not just the set-top — will likely become obsolete within a few years of being deployed. Significant additional investments in headend equipment will be required in the future to support new, two-way services. Also, a broadcast-only system's operating system, conditional access system and signaling protocols are typically incapable of migrating to the full capabilities of an interactive switched digital system. Consequently, the operator may eventually need to either replace the one-way broadcast-only system with an interactive system or deploy a parallel system for interactive applications.

Finally, with the one-way system, an HFC network operator can merely replicate a service package that DBS and MMDS competitors offer. It does not capture the

competitive advantages HFC two-way provides over wireless competitors.

Now a digital broadcast with built-in, real-time reverse system will be available. The one-way system appears to be a digital deadend with a less-than-certain business case.

2. The complex, switched interactive system
This alternative offers a wide range of digital interactive services, including home shopping, interactive games, and video on demand.

The business case, however, still hasn't arrived to make fully switched, interactive digital TV ("switched digital") a viable approach for operators, content providers, manufacturers and consumers. From the outset, this set-top and system architecture requires a reverse path, ATM switching and expensive servers at the headend. Most of these items are expected to drop significantly in cost in the future but remain prohibitive for near-term deployments.

Another weakness of this high-end architecture is the current lack of both applications and content able to take advantage of its features. Developers are unlikely to invest in sophisticated applications until market demand materializes and a "critical mass" of interactive set-tops is installed.

3. The digital broadcast system with a real-time reverse
Scientific-Atlanta's digital system, scheduled to be available in the second half of 1997, will be a hybrid analog-digital architecture with a built-in real-time reverse path for Internet access and for other interactive applications. This system solves the digital dilemma (see sidebar) for broadband operators with a sequential, orderly way to expand the system with two-way capabilities. The broadcast system with built-in reverse will meet current and future needs by providing a migration path — from analog to digital broadcast and audio, to Internet access, and then to interactive-capable services and fully interactive services. All along the way, this architecture will allow for the addition of new services when consumer demand, network support and the overall business case support them.

This "interactive-ready" architecture will support low memory, easy-to-implement services such as analog, digital video, digital music, and interactive viewing guides. Because this architecture will be interactive-ready with a reverse-path transmitter built into the set-top, it will offer another major benefit over the one-way broadcast-only system: It supports both video-on-demand (VOD) and high-speed data access, so operators can take advantage of the popularity of the Internet and meet growing consumer interest in "surfing the Net." The reverse path that supports

A Digital Dilemma

Faced with choosing between broadcast-only systems or switched interactive systems, many broadband operators find themselves in a dilemma. They're understandably reluctant to invest in digital set-tops and headend equipment that have no credible upgrade capability. Nor are they eager to invest now in costly high-end technologies and then wait for applications, consumer demand and networks to catch up with their investments.

But the dilemma is even worse than that — because the weakest option of all is to do nothing. ***Network operators who ignore the trend to digital may see their core business erode, particularly for premium services, as competitors enter the market with more attractive offerings.***

Scientific-Atlanta will soon introduce a new solution: ***a digital broadcast system with a built-in, real-time reverse path.*** *The new Explorer 2000 digital set-top will feature a built-in reverse path transmitter to communicate back to the headend instantaneously, or in "real-time," over the HFC plant. When the operator chooses to activate this capability, two-way services such as Internet access or browsing, true video-on-demand, electronic commerce, e-mail, and games can be supported.*

Internet and VOD is further justified through additional revenue opportunities — such as games, local information services and electronic commerce — and a longer set-top life.

In addition to having a reverse-path transmitter, the system's Explorer 2000 set-top will be client/server ready. All the system will need in order to accommodate future switched-digital interactive services are modular "plug-in" upgrades to the network infrastructure, not to the set-top. Moreover, these additional system elements won't be deployed until economically justified. For example, video-on-demand file servers will be deployed only when affordable. **Best of all, the difference in the cost of a one-way, broadcast-only set-top and a set-top with built-in, real-time reverse is small to non-existent and significantly less than the cost of a truck roll to make the switch!**

The set-top with built-in, real-time reverse itself will become a network computer able to communicate with the consumer. In addition to being a video entertainment device, it also is designed to act as a TV Web browser or a cable modem. So it seamlessly will support both video applications and Internet access via PC or TV.

Through support of today's current analog service with the addition of digital broadcast and interactive services, the "interactive-ready" system will offer a flexible platform from which to grow. When operators are ready to move even further into the world of digital, additional services can be offered such as:

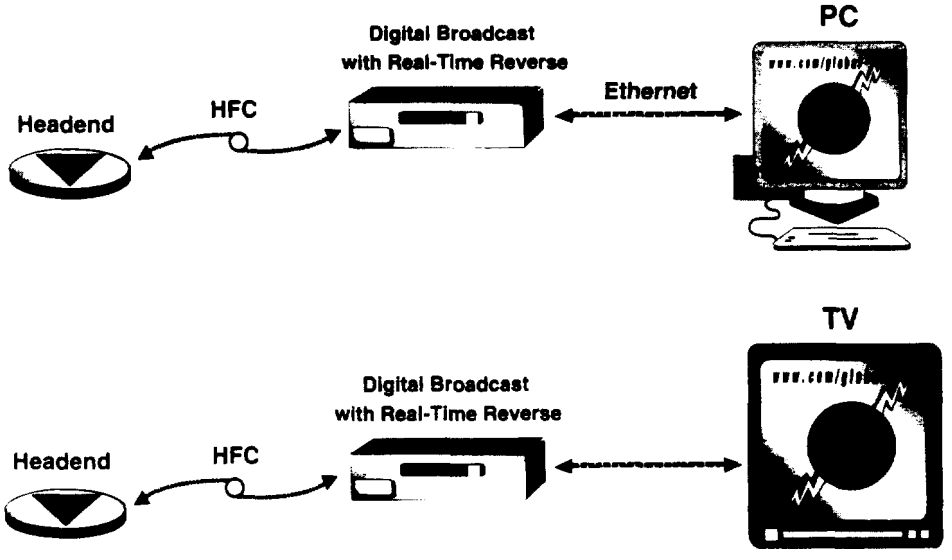
- Home shopping
- Interactive games
- Interactive education/distance learning

Another key advantage of this architecture: It enables operators to continue to deploy addressable analog services to retain the wider base of subscribers, while at the same time offering digital services to a targeted base of high-end subscribers. These are the subscribers most willing to pay for the new services and most susceptible to DBS and other competitive offerings.

Scientific-Atlanta's System: A Snapshot.

This "interactive-ready," digital-with-real-time-reverse architecture consists of more than a functionally rich

Broadcast with Real-Time Reverse:
Internet Access Via PC or TV



set-top. It must also offer a robust multimedia operating system and a locally-controlled conditional access system, provide photo-like graphics and animation, and be in full compliance with evolving global standards — all at a price competitive with one-way broadcast-only terminals.

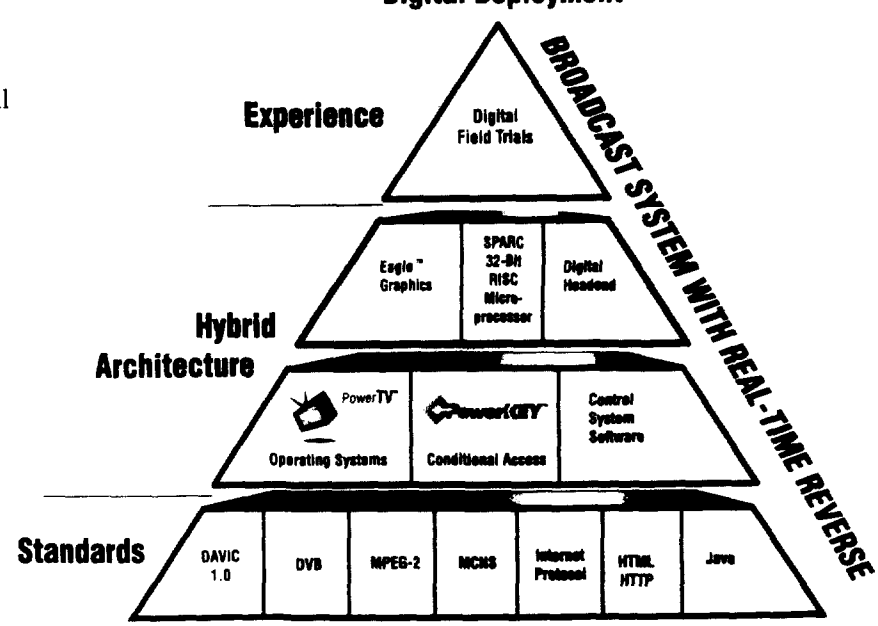
Scientific-Atlanta's two-way system will meet these criteria. The building blocks of the architecture, all based either on open standards or best-available licensable technologies, include:

- Adherence to MPEG-2 standards for audio, video, systems, and signaling — including decompression of Dolby AC-3 and Musicam audio — and a commitment to CableLabs/SCTE, DVB, DAVIC, DSM-CC, ATSC, Internet Protocol, HTML/HTTP and SNMP. An open-standards approach eliminates dependencies upon a single party, fosters competition and differentiation, increases the likelihood of interoperability and connectivity, and encourages content developers and consumers to invest.
- PowerKEY™ digital conditional access system — the industry's first licensable, open conditional access system that will support global standards and a combination of private and public key methods. PowerKEY also will enable local control of conditional access.
- PowerTV Inc.'s PowerTV™ Operating System, which drives real-world, interactive delivery of entertainment and information services to the consumer. PowerTV is the only operating system supporting complete session and signaling management on a hybrid fiber coax network today. It can be licensed to any set-top or consumer electronics manufacturer. (Visit the PowerTV web site at www.powertv.com for further information.)
- Eagle™ graphics/audio accelerator (256 or 65,000 color graphics optimized for NTSC and PAL displays)
- MicroSPARC 32-bit RISC microprocessor core.
- Digital Network Control System — a comprehensive solution for the management and control of entertainment, communications, and electronic commerce services.
- Advanced and trial-proven digital headend equipment.

Scientific-Atlanta has a long list of milestones and "firsts" in the deployment of digital TV networks. We've also been involved in almost all major field trials and deployments of digital home communications terminals, and we work actively in groups developing open worldwide standards.

We drew upon all of these experiences in designing the real-time broadcast system. This innovative architecture

Scientific-Atlanta's Building Blocks for Successful Digital Deployment



Digital-Over-HFC System Comparison

	Broadcast Only	Digital Broadcast With Real-Time Reverse	Switched Interactive Over HFC*
Two-way capable	No	Yes	Yes
Supports:			
Analog	Yes	Yes	Yes
Digital broadcast	Yes	Yes	Yes
Internet	No	Yes	Somewhat
Digital interactive	No	Yes	Yes
Ability to migrate to two-way capabilities	No	Yes	No
Applications exist for system's full capabilities	Yes	N/A	No
Estimated cost	$400 – $450	$425 – $450	$500 – $600

**This column refers to switched interactive HFC networks, not Fiber-to-the-curb (also known as "switched digital video" or SDV) networks. FTTC has additional disadvantages: an even higher initial cost than switched interactive on HFC, inefficient support of digital broadcast, and inability to support analog without a parallel HFC network.*

represents the best mix of standards-based technologies for a scaleable, adaptable network solution. No other digital architecture will offer operators so many advantages — and so much flexibility:

- Complete end-to-end system based
- Open, standards-based approach
- Powerful multimedia operating system
- Seamless delivery of digital video, audio and data services
- Continued support of analog services
- Immediate deployment of Internet access via PC or TV
- Long "shelf life" for set-tops with built-in reverse, expandable memory, upgradable software and efficient use of microprocessor chips
- Migration ready: All components compatible with or upgradable to switched digital
- Affordable migration: Minimal expense to upgrade set-tops
- Ability to target high-end services to sophisticated subscribers
- Local control of conditional access system.

For several years, the broadband communications industry has been waiting for the promise of integrated digital data and video services to be fulfilled. A lackluster business case and debates over open standards have delayed actual commercial deployment over HFC networks.

Scientific-Atlanta's digital broadcast system, including the Explorer 2000 set-top with built-in reverse, is designed to put these issues to rest. It will be built on a foundation of global standards and best-of-breed technologies openly available for licensing. It will allow the broadband operator to deploy core digital services and upgrade the system cost effectively as new services prove their economic merits.

ATSC: Advanced Television Standards Committee

DAVIC: Digital Audio-Visual Council

DBS: Digital Broadcast Satellite

DVB: Digital Video Broadcasting

DVD: Digital Video Disk

HFC: Hybrid Fiber/Coaxial Cable

HTML: HyperText Markup Language

HTTP: HyperText Transfer Protocol

MMDS: Multichannel, Multipoint Distribution Services

MPEG: Moving Picture Experts Group

NVOD: Near-Video-On-Demand

QAM: Quadrature Amplitude Modulation

QPSK: Quaternary Phase Shift Key

SNMP: Simple Network Management Protocol

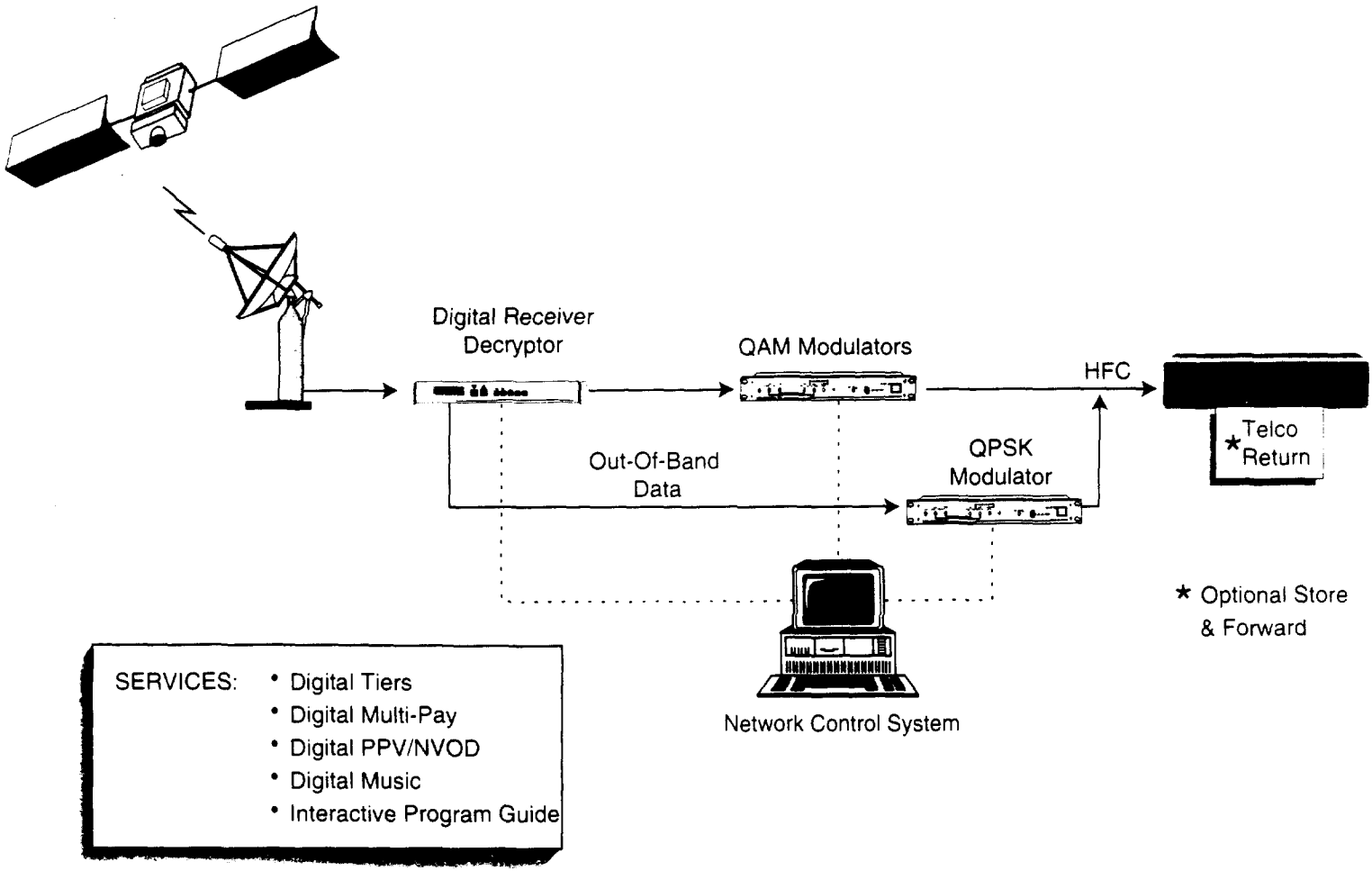
SCTE: Society of Cable and Telecommunications Engineers

VOD: Video On Demand

Related news releases are available at www.sciatl.com

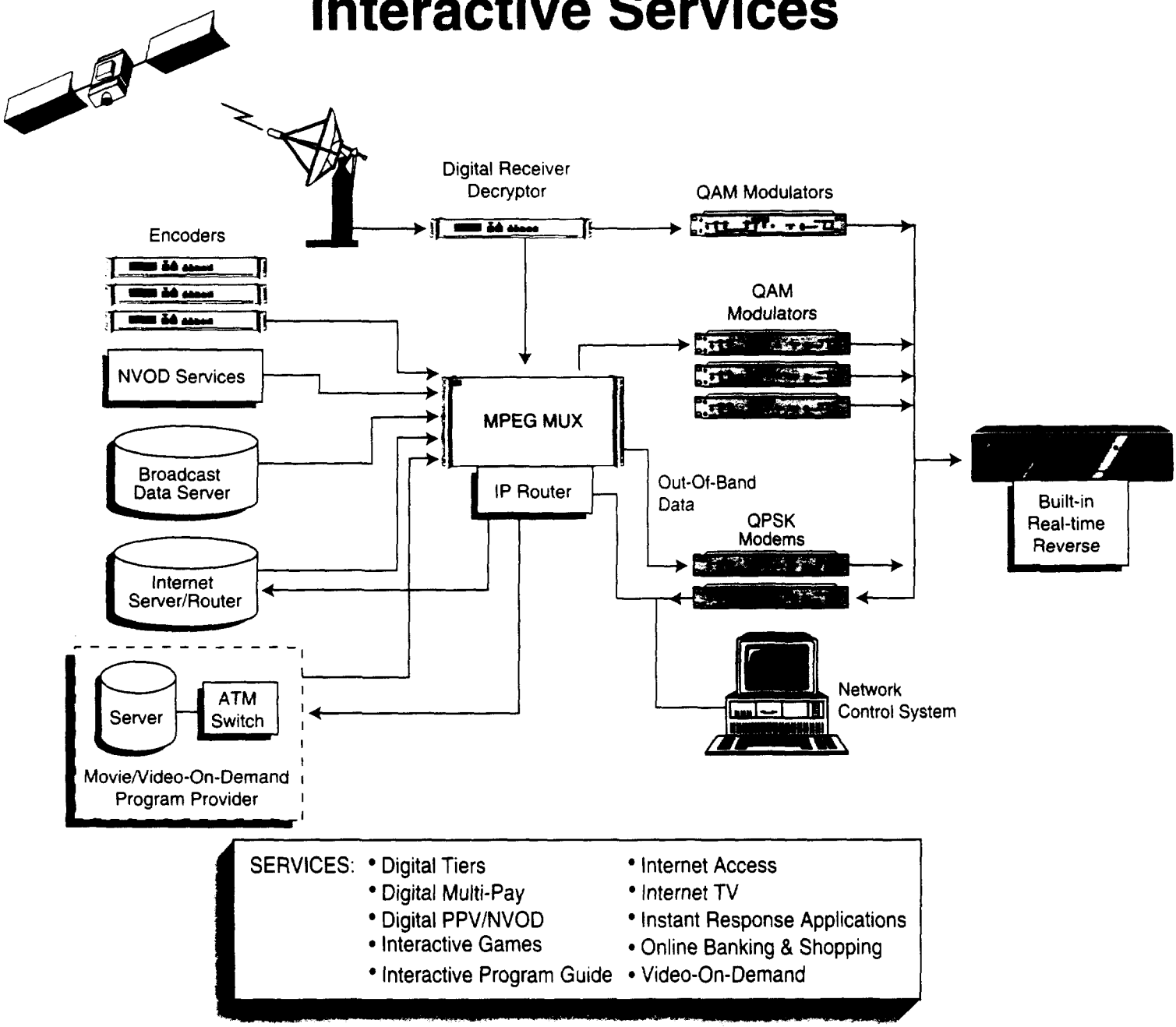
Appendix

Simple Broadcast Only



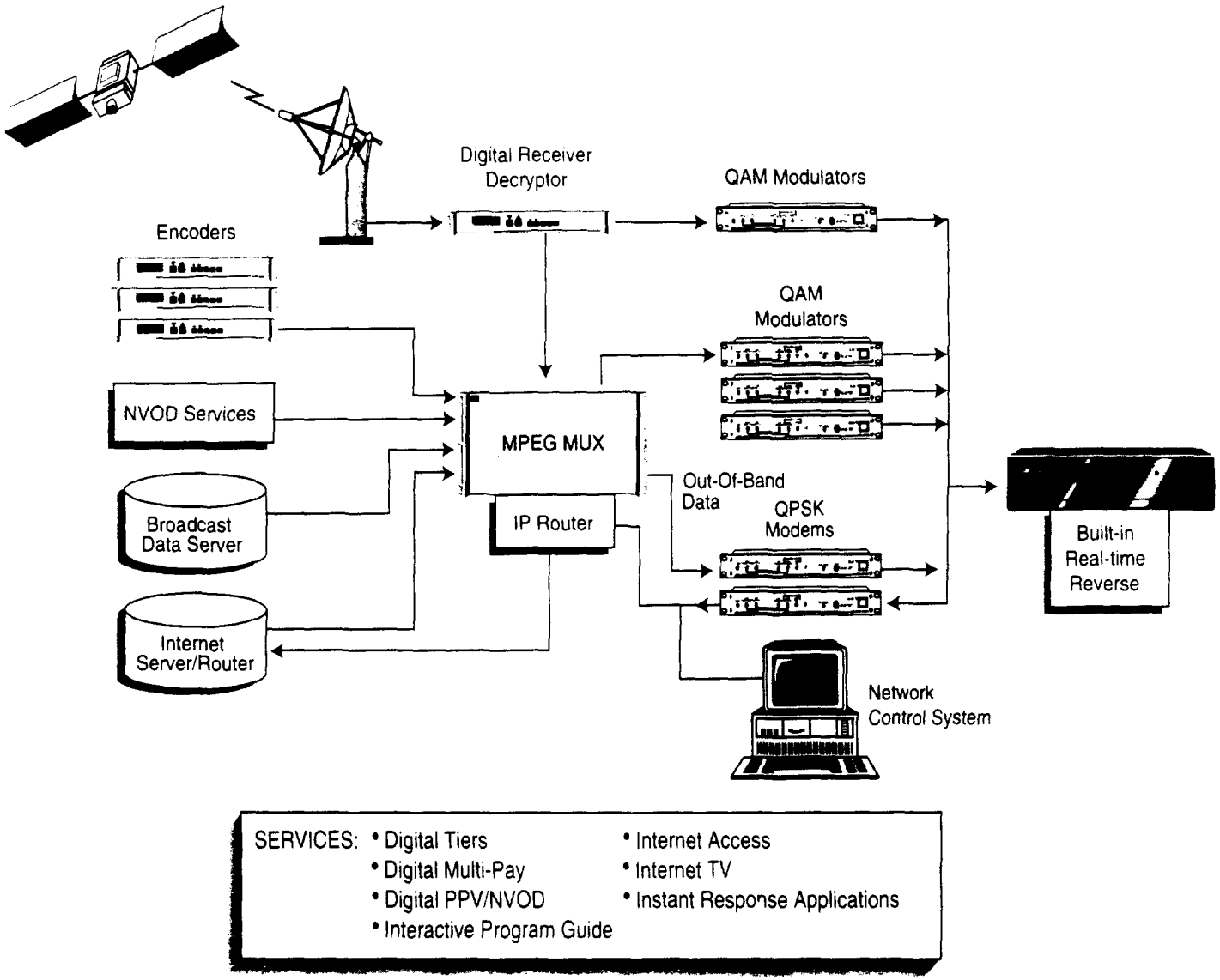
The simple broadcast-only system offers few opportunities for incremental revenue. The limited life span of broadcast-only set-tops means additional investment will likely be required in the near future to replace them with more advanced set-tops.

Interactive Services



This set-top system architecture requires a reverse path, ATM switching and expensive servers at the headend. In spite of the high front-end investment needed, this architecture lacks both applications and content to take advantage of its features.

Digital Broadcast & Internet Access With Real-Time Reverse



This "interactive-ready" system will offer a flexible platform from which to grow. It will support of analog service and provide the built-in features necessary for adding digital broadcast and interactive services when market demand materializes.

Scientific-Atlanta, Inc.
One Technology Parkway, South
Norcross, GA 30092-2967
770-903-5000